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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/697,534

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Steve J. Shattil

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EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/697,534	Applicant(s) SHATTIL, STEVE J.	
	Examiner Kevin Y. Kim	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed June 18, 2008 have been fully considered but they are not persuasive with respect to claims 1-3,5-15 because a new prior art has been found to teach the added limitation. Particularly with respect to claims 2 and 3, a prior art reference showing the common use of IFFT is provided as requested. The argument for claim 4 is persuasive. The previous rejection of claim 4 is withdrawn. However, a new prior art has been located to render the claim obvious as detailed below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3,6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegandt et al in view of Kasapi (US 2003/0064690).

Claims 1 and 6

Wiegandt et al discloses in a carrier Interferometry (CI) transmitter:

a CI coder adapted to encode at least one data sequence (K^{th} bit) onto a CI code ($i\Delta\theta_k$) to produce at least one data-bearing code vector, and

a (OFDM) modulator adapted to modulate the at least one data-bearing code vector onto a plurality of subcarriers.

See Fig 2 (a) and (b), and page 661, first paragraph.

Wiegandt et al is silent on the coder for adjusting subcarrier weights.

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Kasapi teaches a multicarrier communication where weights are dynamically applied to subcarriers to ensure that the sub-carriers propagate along different physical paths to receiver. Thus, it would have been obvious to one skilled in the art at the time the invention was made to adjust subcarrier weights in the CI transmitter of Wiegandt since it similarly uses a plurality of subcarriers to transmit data, where the subcarriers can be ensured to travel along different physical paths to receiver as taught by Kasapi.

Claims 2 and 3.

OFDM modulators includes an IFFT which reads on “an invertible transform module.”

See US patent 6,549,566 teaching an IFFT in an OFDM system for an example. In other words, in order to generate a plurality of subcarriers such as shown in Fig.2b of Wiegandt et al, an IFFT is commonly used.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegandt et al in view of Kasapi (US 2003/0064690) as applied to claim 1 above, and further in view of Uesugi et al (US 2002/0159425).

Uesugi et al teaches scrambling code prior to generating a plurality of subcarriers. See Fig. 6 in order to combine OFDM, which is a multicarrier system like the present invention, and CDMA.

Thus it would have been obvious to one skilled in the art at the time the invention was made to scramble the CI codes as taught by Uesugi et al in order to improve interference immunity. See paragraph [0004].

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5. Claims 5,7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegandt in view of Kasapi, as applied to claims 1 and 6 above and further in view of Steer et al (US 2003/0103445).

Claims 5 and 7.

Wiegandt in combination with Kasapi discloses all the subject matter claimed except that at least one of the modulator and the CI coder is adapted to dynamically allocate subcarriers for at least one communication link.

Steer et al teaches dynamically allocating the subcarriers of OFDM to better accommodate the traffic requirements. See paragraph [0047].

Thus, it would have been obvious to one skilled in the art at the time the invention was made to adapt the OFDM modulator to dynamically allocate subcarriers for at least one communication link for the purpose of better accommodating the traffic requirements, as taught by Steer et al.

Claim 8.

Wiegandt et al is silent on whether the CI coding is non-uniform across the plurality of subcarriers. However, the CI coding is performed to ensure separability between bit k and $(N-1)$ other bits, non-uniform coding would have been obvious to increase separability between transmitted bits.

Claims 9-12,14

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Although Wiegandt et al does not describe a CI receiver, an OFDM demodulator and a CI decoder corresponding to the OFDM modulator and CI coder would have been obvious by reversing the modulation and coding processes, as is commonly done in a communication system.

Claims 13 and 15.

An automatic frequency control (AFC) and interference cancellation are well known in the art to compensate carrier frequency variations and remove interference during transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Kevin Y Kim/

Primary Examiner, Art Unit 2611